

GPSMAP® 2106/2110 & GPS 17

installation instructions



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To obtain warranty service, contact your local Garmin authorized dealer or call Garmin Product Support for shipping instructions and an RMA tracking number. The product should be securely packed with the tracking number clearly written on the outside of the package. The product should then be sent, freight charges prepaid, to any Garmin warranty service station. A copy of the original sales receipt is required as the proof of purchase for warranty repairs.

INTRODUCTION

The GPSMAP 2106/2110 Multi-Function Display (MFD) and GPS 17 must be properly installed according to the following instructions for the best possible performance. To complete the installation, you need the appropriate fasteners, tools, and mounts listed in each section. These items are available at most marine dealers. Always wear safety goggles, ear protection, and a dust mask when drilling, cutting, or sanding. When drilling or cutting, always check first to see what is on the opposite side of the surface. Mount the GPSMAP 2106/2110 in a location that provides a clear, glare-free view of the display and easy operation of the controls. **If you experience difficulty installing the unit, contact Garmin Product Support or seek the assistance of a professional installer.**



GPSMAP 2110

INSTALLATION INSTRUCTIONS

Surface Mounting the GPSMAP 2106/2110

Tools

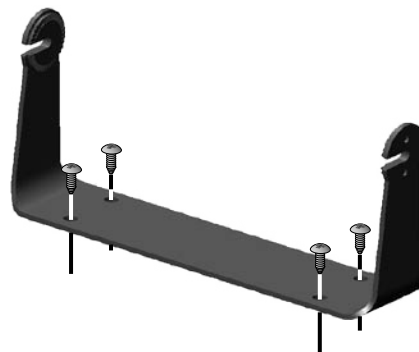
- Drill and drill bit
- Screwdriver
- Pencil
- Mounting hardware (not included)



NOTE: Mounting hardware (fasteners) not included. Mounting holes are 5/16" (7.9 mm) in diameter.

To install the bail mount and unit:

1. Using the bail mount as a template, mark the location of the four mounting holes. Be sure to leave at least two inches of clearance behind the unit for the wiring.
2. Using an appropriate size drill bit, drill pilot holes for the fasteners.
3. Secure the bail mount to the surface with the fasteners.
4. Loosen the mounting knobs.
5. Slide the unit into the bail mount, and tighten the mounting knobs.



Bail Mount



Flush Mounting the GPSMAP 2106/2110

Tools

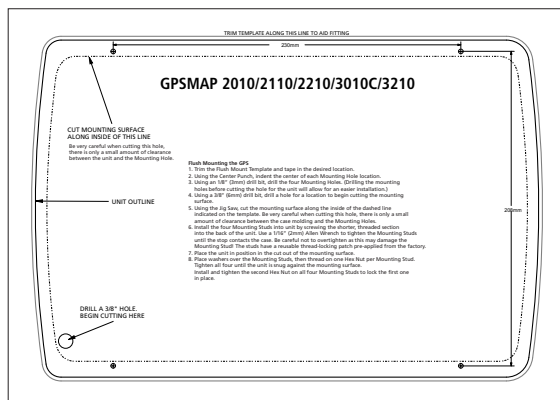
- Flush Mount Template
- Jig saw
- Masking tape
- Scissors
- Drill
- Drill bits—1/8" (3 mm) and 3/8" (6 mm)
- 1/16" (2 mm) Allen (Hex) wrench
- Sockets or wrenches
- Hammer
- Center punch

To flush mount the GPSMAP 2106/2110:

1. Trim the Flush Mount Template, and tape it in the location you want.
2. Using the center punch, indent the center of each mounting hole location.
3. Using an 1/8" (3 mm) drill bit, drill the four mounting holes.
4. Using a 3/8" (6 mm) drill bit, drill a hole to begin cutting the mounting surface.
5. Using the jig saw, cut the mounting surface along the inside of the dashed line indicated on the template. Use a file and sandpaper to refine the size of the hole. **Be very careful when cutting this hole. There is only a small amount of clearance between the case molding and the mounting holes.**
6. Install the four mounting studs into unit by screwing the shorter, threaded section into the back of the unit. Use a 1/16" (2 mm) Allen wrench to tighten the mounting studs until the stop contacts the case. **Be careful not to overtighten because this may damage the mounting stud!** The studs have a reusable thread-locking patch pre-applied from the factory.
7. Place the unit into the cut-out of the mounting surface.
8. Place washers over the mounting studs, then thread on one hex nut per mounting stud. Tighten all four until the unit is snug against the mounting surface. Install and tighten the second hex nut set on all four mounting studs to lock the first set in place.



Flush Mount



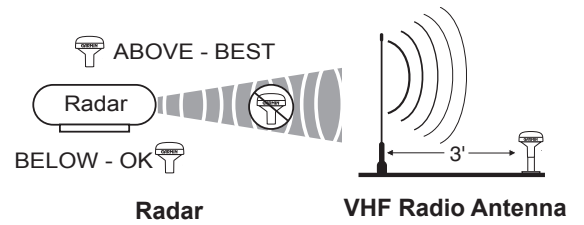
Flush Mount Template

Installing the GPS 17

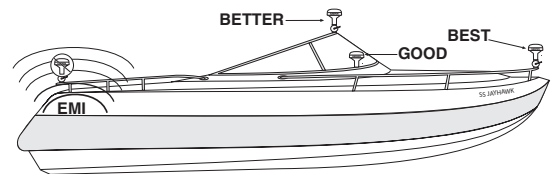
You can install flush mount or install the GPS 17 on any standard 1" O.D. (Outer Dimension), 14 threads-per-inch marine mount. When mounting the GPS 17, the cable can be run externally, through the mounting panel, or through the center of the marine mount.

The GPS 17 connects to the 18-pin Power/Data Cable on the GPSMAP 2106/2110 and provides the GPS/WAAS signal for the unit. If two or more GPSMAP 2106/2110 units are installed, only one GPS 17 needs to be installed.

To ensure the best reception, mount the GPS 17 in a location that has a clear, unobstructed view of the sky in all directions. Avoid mounting the GPS 17 where it is shaded by the boat's superstructure, a radome antenna, or mast. Sailboat users should avoid mounting the unit high on the mast to prevent inaccurate speed readings caused by excessive heeling. The unit provides more stable readings if it is located nearer to water level. **Mount the GPS 17 at least 3 ft away from (preferably above) the path of any radar beam or a VHF radio antenna.** Temporarily secure the unit in the preferred mounting location and test for correct operation. With correct operation verified, permanently mount the unit. If interference with other electronics is experienced, try a different location.



NOTE: Mount the antenna at least 3 ft away from (preferably above) the path of any radar beam or a VHF radio antenna.



EMI (Electromagnetic Interference) from engine components

Signal Interference

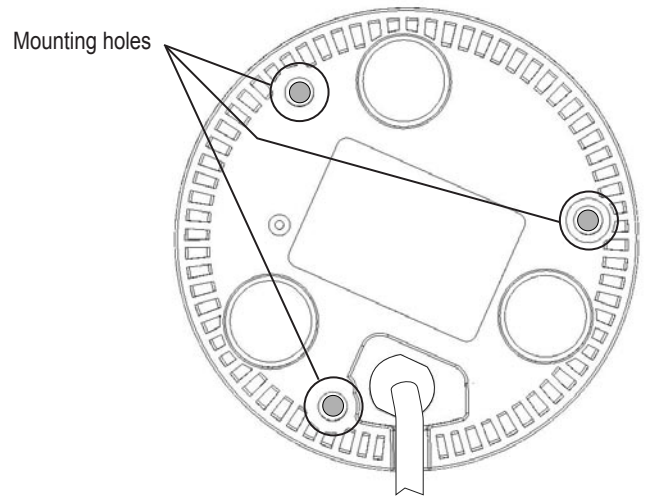


NOTE: Never paint the GPS 17 or clean it with harsh solvents.

To flush mount the GPS 17:

1. Cut out the Flush Mount Drilling Template provided on page 13, and tape it on the selected mounting location.
2. Mark the center of each mounting hole by tapping the end of a center punch or pointed object with a hammer. If the cable is going to be installed through the mounting panel, mark the center of the additional hole.
3. Drill the holes using the appropriate drill bits.
4. Align the GPS 17 over the mounting holes and fasten it using M4 screws. The mounting threads in the GPS 17 are 8.10 mm deep. Do not use screws that thread into the GPS 17 deeper than 8 mm, or the case may be damaged.

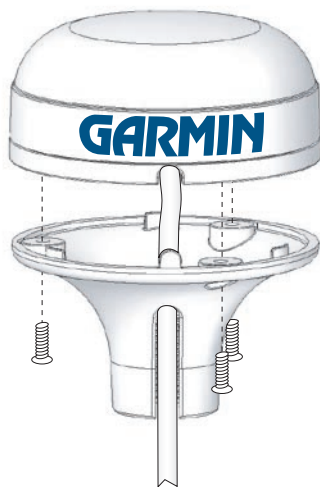
The GPS 17 can be installed with the coax through the panel or on the outside of the unit. If the coax is run through the panel, seal the outside exit area with marine sealant.



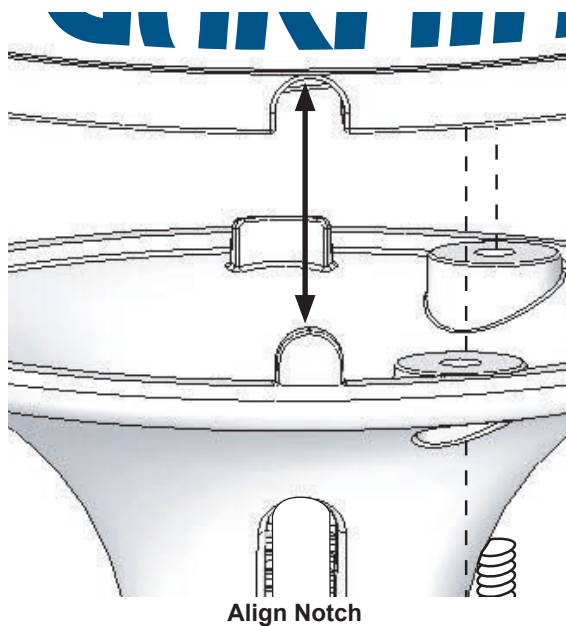
Bottom of GPS 17

To attach the enclosed pole mount to the GPS 17:

1. Thread the cable through the pole mount.
2. Align the tab on the mount to the notch on the GPS 17.
3. Use the enclosed screws to secure the mount to the base.



Attaching the Pole Mount to the GPS 17

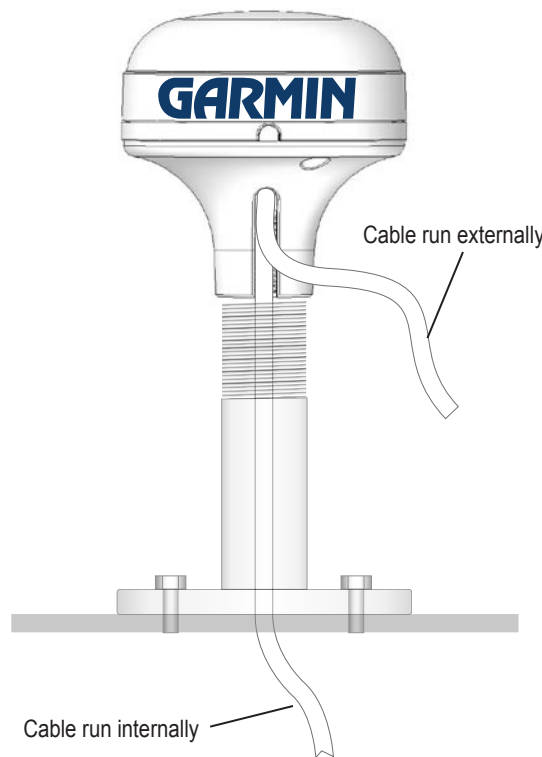


To mount the GPS 17 with the cable run outside the mount:

1. Place the cable in the vertical slot along the side of the base of the unit.
2. Screw the GPS 17 onto the mount. **DO NOT overtighten the head.** It is possible to over tighten the unit and cut the cable.
3. With the GPS 17 and mount installed, fill the remaining gap in the cable exit with a marine sealant.
4. Route the cable away from sources of electronic interference.

To mount the GPS 17 with the cable run through the mount:

1. Position the mount in the preferred location and mark the approximate center of the mount.
2. Drill a hole large enough for the cable to pass through.
3. Slide the cable through the mount, and then screw the GPS 17 onto the mount.
4. Fasten the mount to the boat.
5. Route the cable away from sources of electronic interference.



Wiring and Cables

The GPSMAP 2106/2110 comes with an 18-pin Power/Data cable. For some installations, it may be necessary to drill 1.25" (31.7 mm) holes to route the connector end of the cables. Garmin rubber grommets are provided to cover the installation holes (see below). Wiring instructions are found on the following pages. **If you experience difficulty installing the unit, contact an installation professional.**

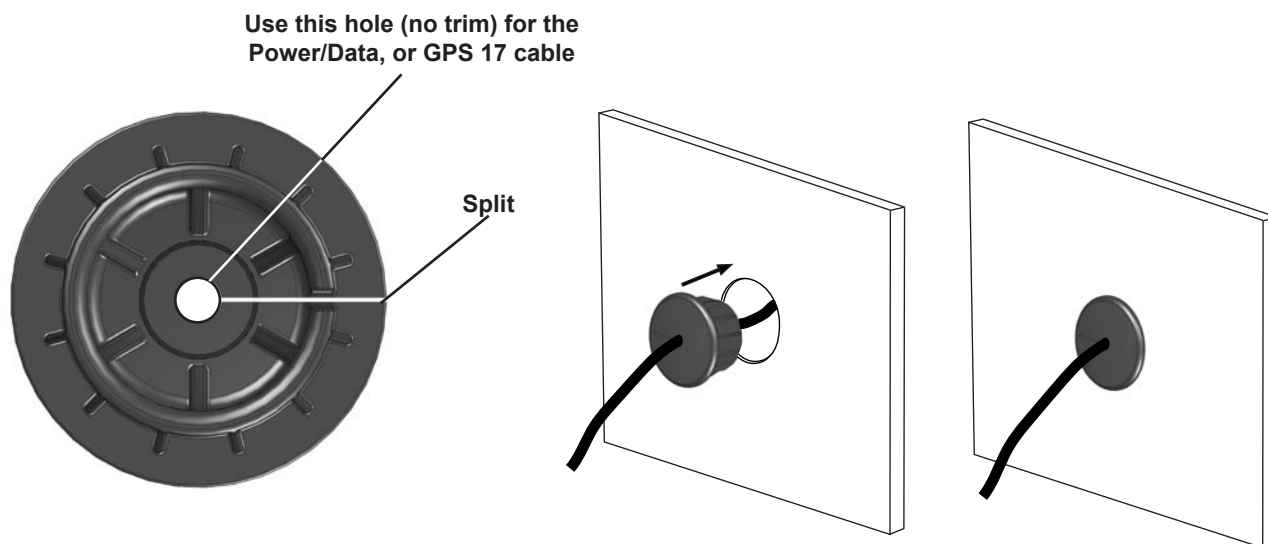
The grommets may not be needed in some installations. The grommets do NOT create a waterproof seal. Apply a marine sealant after installation to weatherproof around the grommet and cable. Additional grommets can be purchased from your Garmin dealer or direct from Garmin. Be sure to test the system before installing the grommets.

Tools

- Drill
- 1.25" (31.7 mm) paddle drill bit or hole saw
- Pencil
- Utility knife
- Marine sealant (optional)

To install the cable grommet:

1. Mark the location where the Power/Data cable is to route through.
2. Using a 1.25" (31.7 mm) paddle drill bit or hole saw, drill the installation hole.
3. Refer to the diagram below for trimming instructions. Carefully trim the cable hole, as needed.
4. Route the cable to the unit.
5. Spread the grommet apart at the split, and place it around the cable (see below).
6. Firmly push the grommet into the installation hole until it is seated. Apply marine sealant, as needed, to weatherproof the cable.



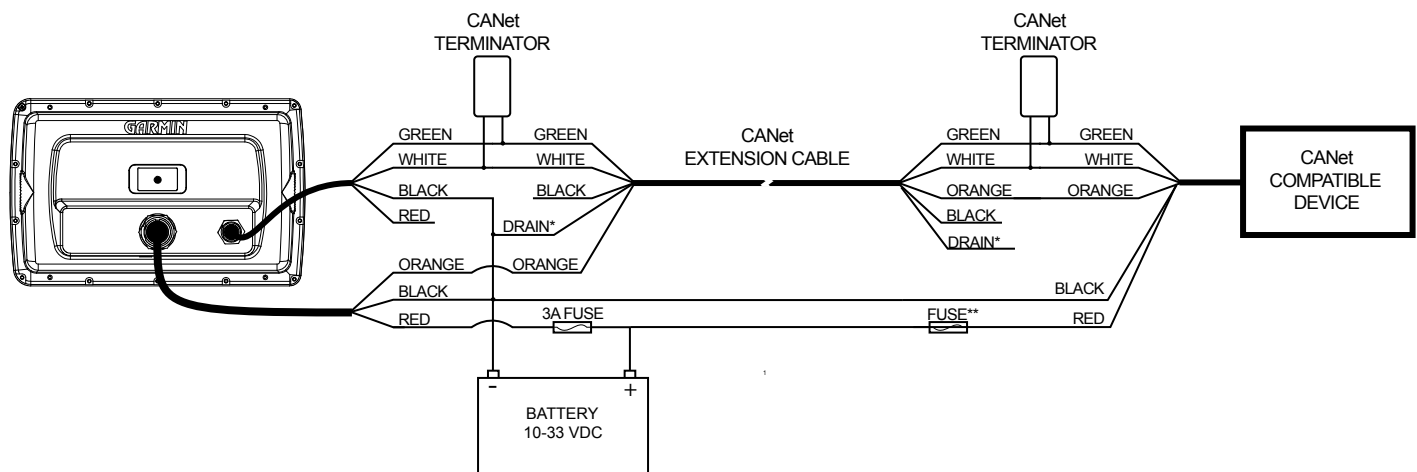
CANet Wiring for the GPSMAP 2106/2110

CANet® is a high-speed sonar network. Using the CANet interface optimizes the performance of the CANet-compatible units. CANet compatible unit device features, such as Ultrascroll™, are affected if a serial interface is used.

To install the 3-Wire Connector:

1. Insert up to three wires into the 3-wire connector. Do not strip the wire insulation. Refer to the following CANet Terminator Connection diagram.
2. Use a standard pair of pliers to fully depress the red button into the connector.
3. Wipe the excess water repellent gel from the connector.

The following diagram shows CANet wiring for the GPSMAP 2106/2110.



CANet Wiring Diagram

Notes:

- * Connect the drain wire only on one side.
- ** Fuse size varies based on the unit. See the unit's owner's manual for specific fuse information.

Power/Data Cable Wiring

The following pages contain several wiring diagrams. The first diagram on the next page is a simple diagram showing the GPSMAP 2106/2110 MFD using the 18-pin Power/Data wiring harness and the GPS 17. If two GPSMAP 2106/2110 units are installed and connected, only one GPS 17 antenna needs to be installed. Next are wiring diagram examples showing the GPSMAP 2106/2110 using the 18-pin Power/Data wiring harness interfacing with a variety of different equipment. Refer to the wiring diagram that best suits your needs. For third-party devices, refer to the wiring guidelines included with that equipment. Use 22 AWG (18 AWG for the Red and Black wires), shielded, twisted-pair wiring for extended runs of wire. Solder all connections and seal the connection with heat shrink tubing. **If networking two MFDs, the GPS 17 and NMEA input devices should only be attached to one MFD.** A pinout of the cable is shown below.

Power/Data Cable Input/Output Ports

The GPSMAP 2106/2110 Power/Data cable has four I/O (Input/Output) ports.

Ports 1 and 2—communicate with other NMEA-compliant devices, such as VHF radios, NMEA instruments, autopilots, or PCs (Port 1 only). You can input one NMEA device to each port, and output in parallel to three NMEA devices per port.

Port 3—is reserved for use with Garmin sounder modules.

Port 4—is reserved for use with the Garmin GPS 17 GPS/WAAS antenna.

The following formats are supported for connection of external devices: Garmin proprietary sonar module and NMEA 0183 version 3.01. The following are the sentences for NMEA 0183, version 3.01 and later output:

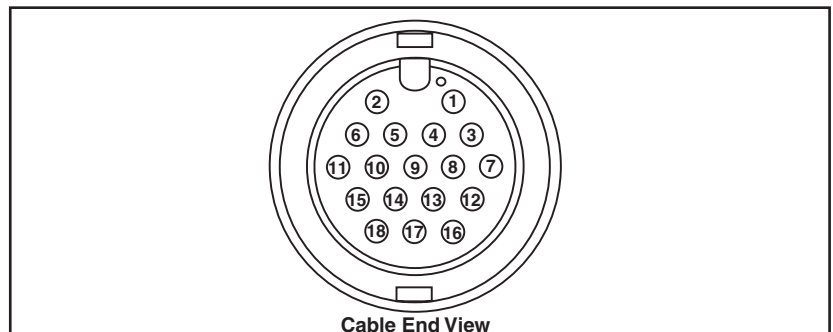
Approved sentences—GPBWC, GPRMC, GPGGA, GPGSA, GPGSV, GPGLL, GPBOD, GPRMB, GPRTE, GPVTG, GPWPL, and GPXTE.

Garmin proprietary sentences—PGRME, PGRMM, PGRMZ, and PSLIB.

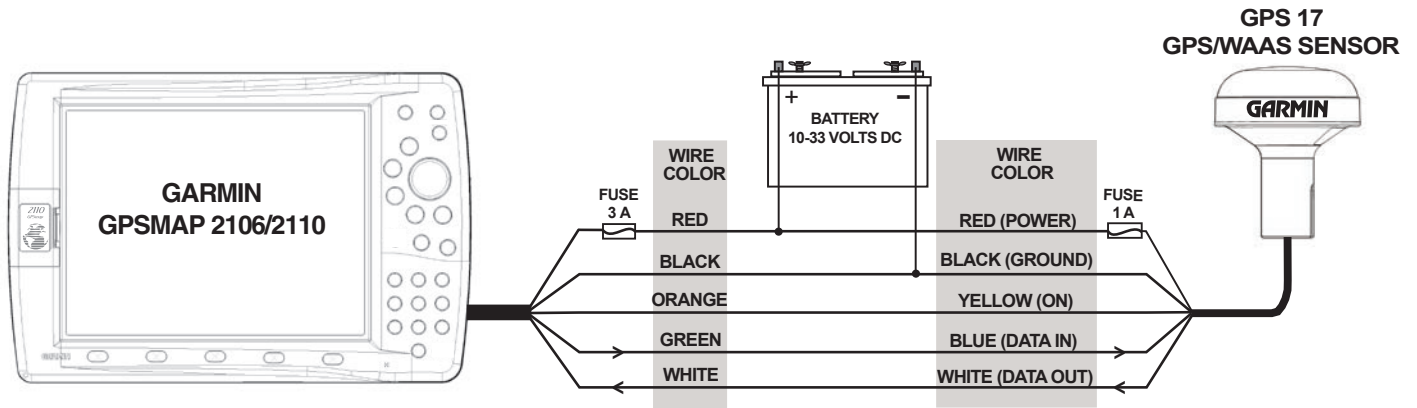
The unit also includes NMEA input with support for the WPL sentence, DSC, and sonar NMEA input with support for the DPT (Depth) or DBT, MTW (Water Temp), and VHW (Water, Speed, and Heading) sentences. The unit interface must be set to **NMEA In/NMEA Out**.

Documentation concerning NMEA and RTCM formats and sentences are available for purchase from:

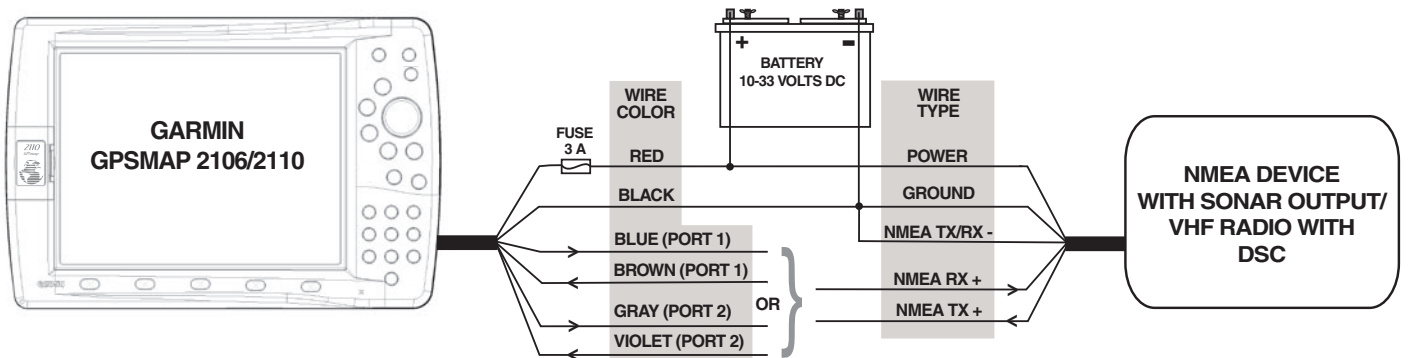
National Marine Electronics Association (NMEA)
 Seven Riggs Avenue
 Severna Park, MD 21146
 U.S.A.
www.nmea.org



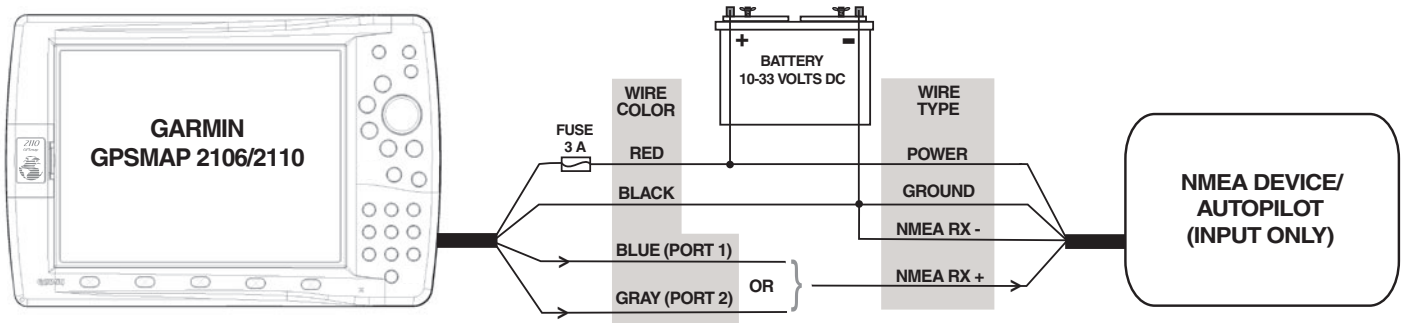
PIN #	COLOR	FUNCTION
1	N/C	
2	N/C	
3	N/C	
4	WHITE/BROWN	PORT 3 DATA IN
5	WHITE/BLUE	PORT 3 DATA OUT
6	ORANGE	ACCESSORY ON
7	N/C	
8	N/C	
9	VIOLET	PORT 2 DATA IN
10	GRAY	PORT 2 DATA OUT
11	YELLOW	ALARM LOW
12	N/C	
13	WHITE	PORT 4 DATA IN
14	GREEN	PORT 4 DATA OUT
15	RED	DC POWER INPUT
16	BROWN	PORT 1 DATA IN
17	BLUE	PORT 1 DATA OUT
18	BLACK	GROUND (POWER/DATA)



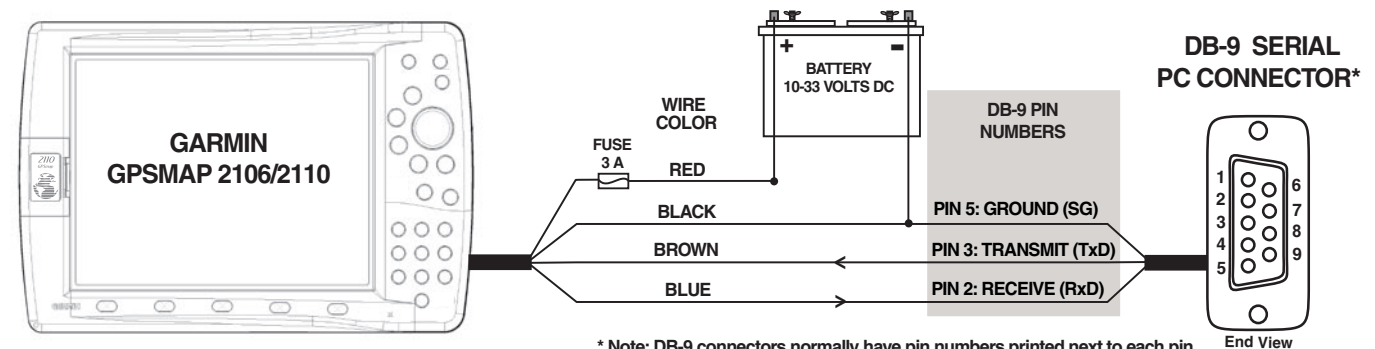
GPSMAP 2106/2110 and GPS 17 Basic Wiring



GPSMAP 2106/2110 and NMEA Device with Sonar Output or VHF Radio with DSC

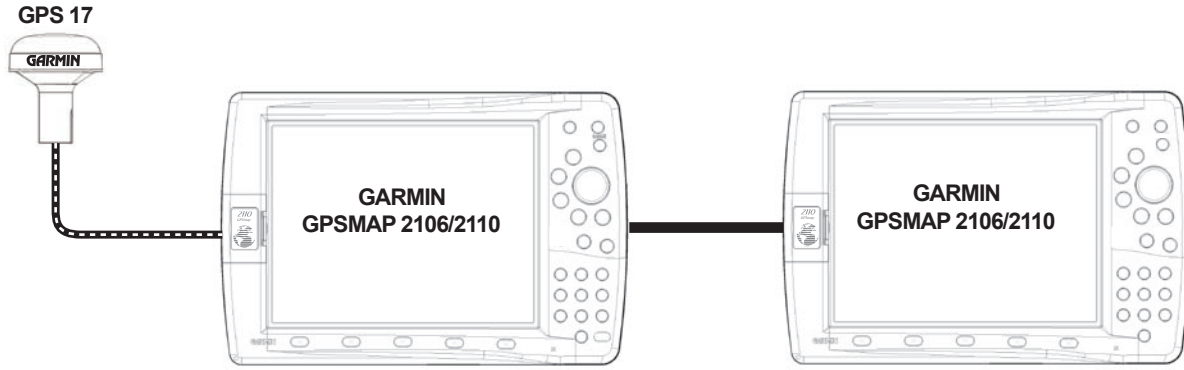


GPSMAP 2106/2110 and NMEA Device/AUTOPILOT



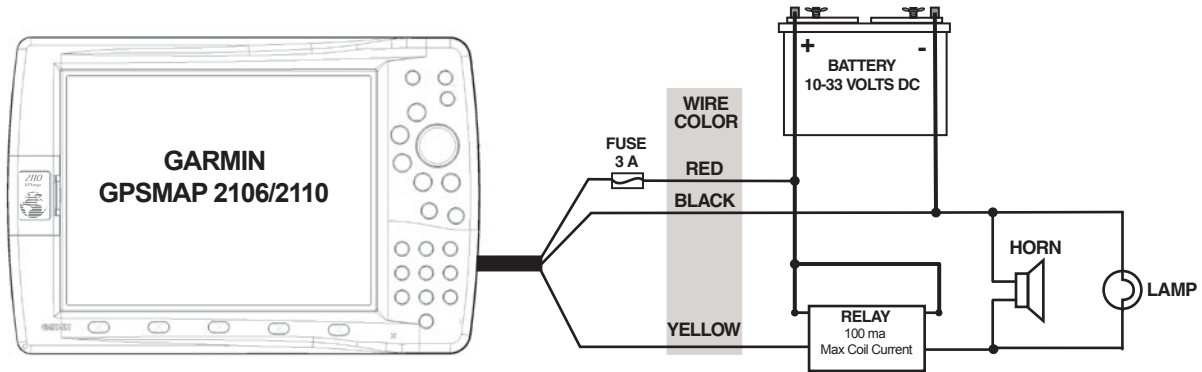
* Note: DB-9 connectors normally have pin numbers printed next to each pin.

GPSMAP 2106/2110 with a PC Serial Port



Optional Alarm Wiring

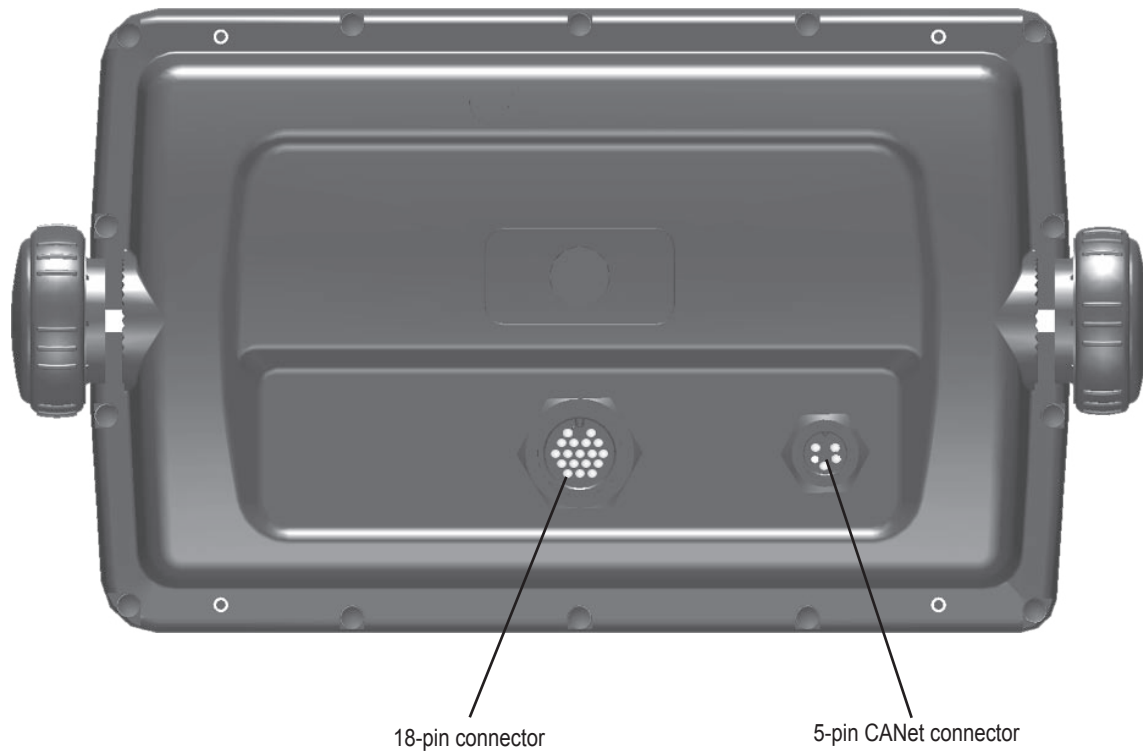
The GPSMAP 2106/2110 has an alarm circuit that can be used with a lamp, a horn, or both to alert you when the unit displays a message. The alarm circuit pulls low when the alarm sounds. The alarm does not have to be wired for the unit to function. The maximum current is 100 milliamps. A switch or relay can be used to select between visual and audible alerts.



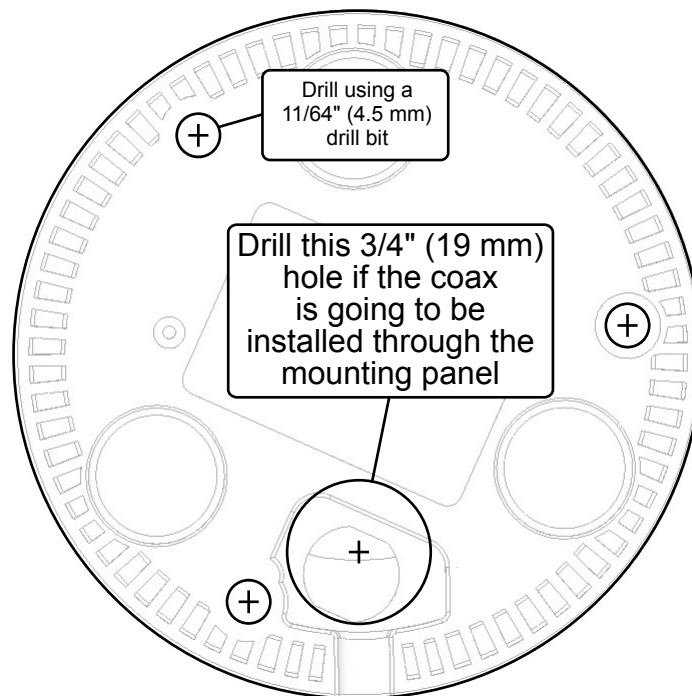
Final Wiring Connection

After all the wiring is complete, plug the 18-pin harness into the center connector on the backside of the GPSMAP 2106/2110. The 5-pin port on the right side is intended for future interfacing features and does not require connection at this time.

With power applied to the circuit, test the installation by pressing the **POWER** key on the front of the unit. See the *GPSMAP 2106/2110 Owner's Manual* for steps on initializing the receiver.



Flush Mount Drilling Template





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